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Appl. No. 10/780,946
Amdt. dated 10/30/2007
Response to Office Action of 08/01/2007

Attorney Docket No.: N1085-00201
[N1280-175.2003-0489]

REMARKS/ARGUMENTS

Claims 1-8 and 17-23 are pending in this application and each of claims 1-8 and 17-23 has been rejected.

Applicants respectfully request re-examination, reconsideration and allowance of each of pending claims 1-8 and 17-23.

I. Rejection of Claims 1-8, 17-19 and 23

In paragraph 2 of the Office action, claims 1-8, 17-19 and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Richter (USPN 2002/0160318) in view of Lin (USP 6,929,887). Applicants respectfully submit that these claim rejections are overcome for reasons set forth below.

Claim 1 recites "... exposing a first set of areas of the photoresist to a first light source through a first mask to activate a photoresist dissolving agent generator of a first type to release a first photoresist dissolving agent in the first set of areas; and exposing a second set of areas of the photoresist to a second light source through a second mask to activate a photoresist dissolving agent generator of a second type to release a second photoresist dissolving agent in the second set of areas ..."

Claim 17 recites "... using a packing mask for exposing a first set of areas of the photoresist to a first light source to activate a photoresist dissolving agent generator of a first type ... and ... using an unpacking mask for activating a photoresist dissolving agent generator of a second type to release a second photoresist dissolving agent to neutralize the first photoresist dissolving agent in one or more predetermined areas within the first set of areas ..."

The method of each of Claims 1 and 17 clearly uses at least two masks.

As conceded by the Action, Richter fails to disclose two masks. The Action then alleges that one of ordinary skill in the art would modify Richter's method by using the packing and unpacking masks of Lin.

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Richter is directed to a method for structuring a photoresist layer. Richter exposes a photoresist layer in parts to light from the defined wavelength range $\Delta\lambda_2$, the wavelength of the light being chosen so that the photoacid generator is substantially inert to the irradiation. (Paragraph [0039]). The photoresist layer is then subjected to
5 light from the wavelength range $\Delta\lambda_1$ **without using a photomask**, such that the acid is liberated from the photoacid generator (Paragraph [0040]). Clearly, Richter uses only one mask in the two exposures to expose the photoresist layer.

Further, Richter exposes the photoresist layer to the light from the wavelength range $\Delta\lambda_1$ without a photomask in order to generate an excess of acid. (Paragraph
10 [0042]). The excessive acid is required for a subsequent cleavage reaction created by a heating step. (Paragraph [0043]). In the heating step, the acid reacts with acid-labile molecular groups in the film-forming polymer so as to liberate alkali-soluble groups on the polymer and increase the solubility of polymer in alkaline solutions. (Paragraph [0043]). If the acid is not sufficient, a desired cleavage reaction may not occur. As a
15 result, the solubility of polymer is reduced and a steep profile of the photoresist layer cannot be achieved. Richter thus clearly and intentionally discloses using the irradiation step **without a photomask** to generate excessive acid. Accordingly, there is and would be no suggestion to modify Richter to provide two masks as in claims 1 and 17.

As such, the Action relies upon Lin for providing two masks – a packing mask
20 and an unpacking mask. Lin, however, is disqualified as prior art according to the following:

Common ownership

The inventions of Lin and the present application were, at the time the invention of the present application was made, owned by or subject to an obligation of
25 assignment to Taiwan Semiconductor Manufacturing Corporation (TSMC), Hsinchu, Taiwan. The assignment of Lin to TSMC was recorded at Reel 012835, Frame 0800. The present application was subject to an obligation of assignment to TSMC at the time

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the present invention was made, and has been assigned, as recorded at Reel 015009, Frame 0546.

Therefore, Lin, a reference only under 35 USC § 102(e), is disqualified as prior art under 35 USC § 103(c).

- 5 Withdrawal of the rejection of claims 1-8, 17-19 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Richter in view of Lin, is respectfully requested based on the foregoing.

II. Rejection of Claims 20-22

- 10 In paragraph 3 of the subject Office action, claims 20-22 were rejected under 35 U.S.C. § 103(a) as being obvious over Richter in view of Lin as applied to claims 1-8, 17-19 and 23 and further in view of DeSimone (USP 6,929,904). Applicants respectfully submit that these claim rejections are overcome for reasons set forth below.

- 15 Claims 20-22 depend from independent claim 17, distinguished from Richter in view of Lin as above. DeSimone has apparently been relied upon for providing a polymer coating but does not make up for the deficiencies of Richter, with Lin being disqualified as prior art. Therefore, claim 17 and claims 20-22 are distinguished from Richter in view of Lin and DeSimone and the rejection of claims 20-22 under 35 U.S.C. § 103(a) as being obvious over Richter in view of Lin and DeSimone, should appropriately be withdrawn.

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CONCLUSION

Based on the foregoing, each of pending claims 1-8 and 17-23 is in allowable form and the application in condition for allowance, which action is respectfully and
5 expeditiously requested.

The Assistant Commissioner for Patents is hereby authorized to charge any fees necessary to give effect to this filing and to credit any excess payment that may be associated with this communication, to Deposit Account 04-1679.

Respectfully submitted,

Dated: October 30, 2007


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